

REMARKS

The drawings were objected to under 37 CFR 1.83(a). Claim 34 was rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Claim 34 was rejected under 35 U.S.C. §112, second paragraph, as failing to comply with the written description requirement. Claims 24, 25, 29, 30 and 34 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 13, 17 (seemingly 16 since only claim 16 is argued) and 34 were rejected under 35 U.S.C. §102(b) as being anticipated by either one of Swedish Patent Publication No. 20010003730 to Nilsson et al. (hereinafter "Nilsson") or U.S. Patent No. 5,227,130 to Nylund (hereinafter "Nylund"). Claims 17, 20 to 22, 26 to 28 and 31 were rejected under 35 U.S.C. §102(b) as being anticipated by Nilsson. Claims 18 and 19 were rejected under 35 U.S.C. §102(b) as being anticipated by Nylund. Claims 32 and 33 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nilsson alone or in combination with U.S. Patent No. 4,859,408 to Kerrey (hereinafter "Kerrey").

Claims 13, 19, 20, 25, 26, 30, 32 and 33 have been amended to more clearly and particularly define the invention. Claims 18, 24, 29 and 34 have been canceled.

Reconsideration of the application based on the foregoing amendments and the following remarks is respectfully requested.

Drawings

The drawings were objected to under 37 CFR 1.83(a). The drawings must show the lattice reinforcing device directly secured to the guide tubes by expansion and the lattice reinforcing device directly secured to the guide tubes by sleeving, recited in claims 32 and 33 respectively.

Claims 32 and 33 have been amended and are now method claims. Figure 2 can encompass the tube expansion or the sleeving method.

Withdrawal of the objections regarding the drawings is respectfully requested.

35 U.S.C. §112 Rejections

Claim 34 was rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement for a device wherein some of the interior walls of the lattice reinforcing device are not contacted by the guide tubes.

Claim 34 has been canceled.

Withdrawal of the rejections of claim 34 under 35 U.S.C §112, first paragraph, is respectfully requested.

Claim 34 was rejected under 35 U.S.C. §112, second paragraph, as failing to comply with the written description requirement.

Claim 34 has been canceled.

Withdrawal of the rejections of claim 34 under 35 U.S.C §112, second paragraph, is respectfully requested.

Claims 24, 25, 29, 30 and 34 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office Action asserts there is insufficient antecedent basis for the limitation “the plates” in the claims.

Claims 24, 29 and 34 have been canceled.

Claims 25 and 30 have been amended, and no longer recite “the plates.”

Withdrawal of the rejection to claims 24, 25, 29, 30 and 34 under 35 U.S.C. §112, second paragraph, is respectfully requested.

35 U.S.C. §102 Rejections

Claims 13, 17 (seemingly 16 since only claim 16 is argued) and 34 were rejected under 35 U.S.C. §102(b) as being anticipated by either one of Nilsson or Nylund.

Nilsson discloses a “fuel assembly for a pressurized water nuclear reactor, said fuel assembly comprising a first support plate, a second support plate, a plurality of fuel rods, a plurality of guide tubes for control rods that extend from the first support plate to the second support plate.” (Page 2, lines 2 to 6 of English translation). “[T]he fuel assembly includes at least one stiffening element, which extends from the first support plate to the second support plate.” (Page 7, lines 6 to 8).

Nylund discloses a fuel assembly for a nuclear reactor of the pressurized water type. The fuel assembly comprises a number of fuel rods and guide tubes. The PWR assembly has lower and upper end covered boxes 6 and 7 for guiding coolant fluid. Inside the lower box 7, the holding grids 2 are replaced by grids 10 and 11, the structure of which these are shown on Fig. 3 and 4. The crossed plates of these grids are welded on the box 7 in order to provide a support to the walls of the box (see col. 2, lines 46 to 68). It is also stated that the fuel rods are fixed in the grids 10 and 11, which necessarily mean that these grids have means for holding the fuel rod.

Claim 34 has been canceled.

Claim 13 has been amended to recite “[a] PWR nuclear fuel assembly comprising:
nuclear fuel rods disposed in a substantially regular array, the array having a peripheral layer of fuel rods constituting a closed loop and an adjacent layer of fuel rods, the adjacent layer constituting a closed loop of fuel rods adjacent to and surrounded by the peripheral layer;

a supporting skeleton having two nozzles;

guide tubes for receiving control rods, said guide tubes interconnecting the nozzles;

and

spacer grids for holding the fuel rods, wherein the grids are secured to the guide tubes, the assembly further comprising:

at least one lattice reinforcing device for reinforcing the support skeleton, the lattice reinforcing device comprising two sets of crossed plates that are secured to one another, the crossed plates defining between them cells for receiving guide tubes and cells for

receiving nuclear fuel rods, the lattice reinforcing device having an upper end and a lower end disposed between two adjacent spacer grids,

wherein the lattice reinforcing device is directly secured to the guide tubes,

wherein the lattice reinforcing device does not extend between the fuel rods of the peripheral layer and between the fuel rods of the adjacent layer.”

Nilsson fails to teach or show “the lattice reinforcing device having an upper end and a lower end between two adjacent spacer grids,” as recited in claim 13. The Office Action asserts stiffening element 30 of Nilsson is the lattice reinforcing device. Stiffening element 30 extends between the first support plate 18 and second support plate 20, and therefore the stiffening element 30 does not have “an upper end and a lower end between two adjacent spacer grids” as now claimed. Furthermore, Nilsson fails to teach or show “the lattice reinforcing device comprising two sets of crossed plates that are secured to one another, the crossed plates defining between them cells for receiving guide tubes and cells for receiving nuclear fuel rods,” as recited in claim 13. The asserted lattice reinforcement device, stiffening element 30 of Nilsson, does not comprise “crossed plates defining between them cells for receiving guide tubes and cells for receiving nuclear fuel rods,” as claimed, nor does the Office Action address such a limitation in Nilsson.

Nylund, as previously argued in the response to Office Action dated September 24, 2007, also fails to teach or show “wherein the lattice reinforcing device does not extend between the fuel rods of the peripheral layer and between the fuel rods of the adjacent layer,” as recited in claim 13. The Office Action asserts the central spacer 11 of Nylund is the lattice reinforcing device. Central spacer 11 is “welded to the box [7] wall,” (Col. 2, lines 44 to 45) and therefore clearly extends “between the fuel rods of the peripheral layer and between the fuel rods of the adjacent layer.” This is evidenced in figure 4 of Nylund.

Since neither Nilsson nor Nylund disclose all limitations of claim 13, withdrawal of the rejection to claims 13 and 17 (and 16) is respectfully requested.

Claims 17, 20 to 22, 26 to 28 and 31 were rejected under 35 U.S.C. §102(b) as being anticipated by Nilsson.

Nilsson is discussed above.

Claims 20 and 26 have been amended to recite in part “comprising two sets of crossed plates that are secured to one another, the crossed plates defining between them cells for receiving guide tubes and cells for receiving nuclear fuel rods, the lattice reinforcing device having an upper end and a lower end disposed between two adjacent spacer grids.”

As discussed above, Nilsson fails to teach or show “the lattice reinforcing device having an upper end and a lower end disposed between two adjacent spacer grids,” as recited in claims 20 and 26. The Office Action asserts stiffening element 30 of Nilsson is the lattice reinforcing device. Stiffening element 30 extends between the first support plate 18 and second support plate 20, and therefore the stiffening element 30 does not have “an upper end and a lower end between two adjacent spacer grids” as now claimed. Furthermore, Nilsson fails to teach or show “the lattice reinforcing device comprising two sets of crossed plates that are secured to one another, the crossed plates defining between them cells for receiving guide tubes and cells for receiving nuclear fuel rods,” as recited in claims 20 and 26. The asserted lattice reinforcement device, stiffening element 30 of Nilsson, does not comprise “crossed plates defining between them cells for receiving guide tubes and cells for receiving nuclear fuel rods,” as claimed, nor does the Office Action address such a limitation in Nilsson.

Withdrawal of the rejection of claims 17, 20 to 22, 26 to 28 and 31 under 35 U.S.C. §102(b) is respectfully requested.

Claims 18 and 19 were rejected under 35 U.S.C. §102(b) as being anticipated by Nylund.

Nylund is discussed above.

Claim 18 has been canceled and the limitation of claim 18 has been added to claim 13.

Claim 13 now recites, “[a] PWR nuclear fuel assembly comprising:

nuclear fuel rods disposed in a substantially regular array, the array having a peripheral layer of fuel rods constituting a closed loop and an adjacent layer of fuel rods, the

adjacent layer constituting a closed loop of fuel rods adjacent to and surrounded by the peripheral layer;

a supporting skeleton having two nozzles;

guide tubes for receiving control rods, said guide tubes interconnecting the nozzles;

and

spacer grids for holding the fuel rods, wherein the grids are secured to the guide tubes, the assembly further comprising:

at least one lattice reinforcing device for reinforcing the support skeleton, the lattice reinforcing device comprising two sets of crossed plates that are secured to one another, the crossed plates defining between them cells for receiving guide tubes and cells for receiving nuclear fuel rods, the lattice reinforcing device having an upper end and a lower end disposed between two adjacent spacer grids,

wherein the lattice reinforcing device is directly secured to the guide tubes,

wherein the lattice reinforcing device does not extend between the fuel rods of the peripheral layer and between the fuel rods of the adjacent layer.”

As discussed above, Nylund, as previously argued in the response to Office Action dated September 24, 2007, fails to teach or show “wherein the lattice reinforcing device does not extend between the fuel rods of the peripheral layer and between the fuel rods of the adjacent layer,” as recited in claim 13. The Office Action asserts the central spacer 11 of Nylund is the lattice reinforcing device. Central spacer 11 is “welded to the box [7] wall,” (Col. 2, lines 44 to 45) and therefore clearly extends “between the fuel rods of the peripheral layer and between the fuel rods of the adjacent layer.” The Office Action asserts that Fig. 4 shows the claimed two sets of cross plates. “Crossing plates 16 forming central lattice 15 are extended to the walls of the surrounding fuel box 7” clearly shows the lattice reinforcing device asserted in Nylund extends between the fuel rods of the peripheral layer and between the fuel rods of the adjacent layer. Therefore central spacer 11 having crossing plates 16 fails to show a “lattice reinforcing device does not extend between the fuel rods of the peripheral layer and between the fuel rods of the adjacent layer,” as claimed.

Withdrawal of the rejection of claims 18 and 19 is respectfully requested.

35 U.S.C. §103 Rejections

Claims 32 and 33 were rejected under 35 U.S.C. §103(a) as being unpatentable over Nilsson alone or in combination with Kerrey.

Nilsson is discussed above.

Kerrey discloses a method and apparatus for securing structural tubes in nuclear reactor fuel assemblies.

Claims 32 and 33 are dependent on claim 13. In light of the discussion above regarding claim 13 and Nilsson, withdrawal of the rejection to claims 32 and 33 is respectfully requested.

Withdrawal of the rejection of claims 32 and 33 is respectfully requested.

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CONCLUSION

It is respectfully submitted that the application is in condition for allowance and applicants respectfully request such action.

If any additional fees are deemed to be due at this time, the Assistant Commissioner is authorized to charge payment of the same to Deposit Account No. 50-0552.

Respectfully submitted,
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